





# UNITED STATES PATENT OFFICE.

RUDOLF DIEM, OF MUNICH, GERMANY.

## SAND-DISTRIBUTER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 633,083, dated September 12, 1899.

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*To all whom it may concern:*

Be it known that I, RUDOLF DIEM, a subject of the German Emperor, and a resident of Munich, Germany, have invented certain new and useful Improvements in Sand-Distributers for Locomotives, of which the following is a specification.

Many railway accidents are caused by the slipping of the wheels of the train along the line even when the brakes are so forcibly applied that the wheels do not rotate. There are arranged many systems of sand-boxes on locomotives for the purpose of preventing such sliding of the train, but in emergency it is impossible for the driver to simultaneously put the sand-distributer and the brake into action.

The object of the present invention is an apparatus by which a sliding of the train is reduced to the least possible minimum by early distributing of sand.

This sand-distributer works only when the danger-brake is put in action, but in braking only a little it remains out of action. This new apparatus has, moreover, the advantage that in case of an accident one can tell directly if the brake was in action, because the rails covered with sand show clearly at what distance from the place of the accident the brake has been applied.

In the annexed drawings, Figure 1 shows the sand-distributer in side view, and Figs. 2 and 3 in longitudinal section. Fig. 4 is a section from below on the line 4 4 of Fig. 3. Fig. 5 shows the sand-distributer arranged on a locomotive.

The construction of the sand-distributer is as follows: As in Figs. 2 and 3 there is arranged in a casing *a* a channel *d* going from the top to the bottom, and its exit is at *b* into a vertical channel *c*, serving for carrying the sand downward. In the channel *c* there is arranged a valve *g*, frictionally held by a spring *f* for the purpose of closing the exit-opening of channel *d*. This valve is provided with a finger or a fork *h* for stirring up the sand in the channel *d*. The up-and-down movement of this valve is effected by means of an angle-lever *m n o* outside the casing and swinging on pivot *i*; but, as is to be seen in Fig. 1, this angle-lever is by arrangement of a spring *p* normally moved to the left. In consequence the valve will normally close the opening *b*. The formation of the angle-lever

*m n o* varies with the construction of the locomotive and the position of the sand-distributer. The upper hole *r* of the sand-distributer is connected with one of the sand-boxes on the locomotive, while the lower end of the channel *c* is provided, as shown in Fig. 5, with a downward pipe *s*, through which the sand is carried downward and distributed upon the rails.

An example of the arrangement of the sand-distributer is shown in Fig. 5, wherein the arm *o* of the angle-lever *m n o* is connected through a drawing-gear *x* with the brake, which comprises two brake-shoes *k* and *l*, fastened upon the lever-arms *u* and *v*, which swing upon the pivots *r* and *t*. At a point 9 on the lever *u* is pivoted a lever 10, which connects at an intermediate point and through a rod 11 with the ends of the other swinging brake-lever *v*. The lever 10 is further connected (at its lower end) with the draw-rod *y* of the safety-brake and the drawing-gear *x* of the sand-distributer. Should the rod *y* be drawn in the direction of the arrow *z*, the brake-shoes will be pressed against the wheels 12 and 13 and the locomotive will be braked. Simultaneously the sand-distributer comes into action, since the drawing-gear *x* brings the valve *g* into the position shown in Fig. 2, at which time the sand may escape. The arm *n* of the angle-lever *m n o* can, however, be readily operated at will from the engine-cab independently of the action of the brakes, this being accomplished through the medium of the drawing-gear. (Shown by dotted lines 6 in Fig. 5.)

I claim as my invention—

A sand-distributer for locomotives comprising in combination a casing *a* forming part of the sand-pipe *s* and having a channel *d* therein leading to a valve-seat *b*, a valve *g* to said valve-seat, a lever for operating said valve, a danger-brake and rods for operating the same, together with suitable drawing-gear for connecting the lever with the rods of the danger-brake so that on actuating the latter the sand-distributer is also put into action.

The foregoing specification signed at Munich, Germany, this 7th day of January, 1899.

RUDOLF DIEM.

In presence of—

EMIL HENZEL,  
LUDWIG VANIEW.